

REMARKS

The Examiner is thanked for the performance of a thorough search. No claims are canceled or added. Claims 1-39 are pending in this application. The amendments to the claims and the new claims do not add any new matter to this application. Furthermore, the amendments to the claims were made to improve the readability and clarity of the claims and not for any reason related to patentability. All issues raised in the Office Action are addressed hereinafter.

I. ISSUES RELATING TO PRIOR ART

A. **Claims 1, 6-8, 10-13, 23-25, 30-32, AND 37-39—Sharma et al.**

Claims 1, 6-8, 10-13, 23-25, 30-32 and 37-39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,754,716 to Sharma et al. (hereinafter “*Sharma*”).

Applicants disagree with the basis of the rejection; however, solely for the purposes of advancing prosecution and administrative efficiency, independent claims 1, 12, 23-25 have been amended. Support is found in at least paragraphs 28 to 33 of applicants’ specification.

Claim 1 recites receiving an instruction to update an ARP table from a particular subsystem of a network device comprising a plurality of subsystems. *Sharma*, in contrast, only describes testing whether a **host as a whole** is authorized to make an ARP table update (FIG. 5 step 502, FIG. 6 step 604). In response, the Office Action contends (Detailed Action, page 2, paragraph 4) that “‘subsystems of a network element’ is a very broad term and therefore the examiner interpreted the authorized network device as subsystems of network element.” Applicant disagrees. The meaning of “subsystems” is apparent from any dictionary or from applicants’ specification and plainly refers to a functional unit within a network element rather than the network element as a whole. No reasonable reading of *Sharma* can interpret “host” in FIG. 5, FIG. 6 as a subsystem of a host.

Further, the clarification in present claim 1 is clearly different than *Sharma*. In claim 1, a request is received from a particular subsystem of a network device comprising a plurality of subsystems. *Sharma* does not show receiving requests from particular subsystems.

Claim 12 features determining whether an instruction to update an ARP table arriving on a particular network interface is on an authorized network interface. The Office Action contends (Detailed Action, page 3, paragraph 6) that the claim features are shown in *Sharma* 1:66 to 2:30 and 5:44 to 6:10, referring to network devices on a common subnet. Applicants disagree. A description of network devices on a common subnet says nothing about testing whether the network interface on which an instruction arrives is an authorized interface. Even if successive requests of different hosts in *Sharma* arrive on different interfaces, *Sharma* has no suggestion to test whether the interface on which a request arrives is authorized, as opposed to testing whether the host is authorized.

Claim 12 features “determining whether a particular **network interface through which the instruction was received** is contained in a set of one or more specified network interfaces”. The Office Action states that column 5, line 44 through column 6, line 10 of *Sharma* anticipates this feature. This is incorrect. The *Sharma* reference describes comparing protocol addresses, not network interfaces through which the instruction was received. In addition, the *Sharma* reference describes the process to determine whether an ARP request should be sent, not whether an ARP table should be updated.

Even if the separate features of Claim 12 could be found in *Sharma*, Claim 12 features a method where all of the following are determined in some cases: whether a particular network interface through which the instruction was received is contained in a set of one or more specified network interfaces, determining whether a particular network address indicated by the instruction is contained in a set of one or more specified network addresses and determining whether a particular subsystem is authorized. *Sharma* cannot be reasonably interpreted as anticipating a process with all these three features in the same method. Reconsideration is respectfully requested.

To anticipate under 35 U.S.C. § 102(e), a reference must show all elements, steps or limitations of a claim, arranged as in the claim. An anticipation rejection is unsupported or overcome if a reference is missing even one element, step or limitation. *See Connell v. Sears*,

Roebuck & Co., 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983). Here, applicants have shown that *Sharma* lacks at least one feature recited in claim 1 and claim 12. Therefore, an anticipation rejection is unsupported. Reconsideration is respectfully requested.

Independent Claims 23-25 also recite the above-quoted features, although Claims 23-25 are expressed in other formats. Claims 23-25 have all the features described above for Claim 1, and therefore Claims 23-25 are allowable over *Sharma* for the same reasons given above for Claim 1. Reconsideration is respectfully requested.

Claims 6-8, 10-11 depend from Claim 1, and include each of the above-quoted features by dependency. Thus, Claims 6-8, 10-11 also lack at least one feature found in *Sharma*, and therefore *Sharma* does not anticipate Claims 2, 6-8, 10-11.

In addition, each of Claims 6-8, 10-11 recites at least one feature that independently renders it patentable. For example, Claim 8 recites “**if the particular subsystem is not authorized**, then performing the steps of: determining whether a particular network address indicated by the instruction is contained in a set of one or more specified network addresses.” The Office Action contends that the quoted feature is found in *Sharma* column 5, lines 44 through column 6, line 10 and Figure 5, steps 502 and 504. These references describe comparing protocol addresses to authorized protocol address; however, such comparing is NOT dependent on determining that a particular subsystem is not authorized, as featured in Claim 1.

In addition Claim 8 recites the conditional feature, “if the particular network address is not contained in the set, then updating the ARP table based on the instruction.” The Office Action contends that the quoted feature is found in *Sharma* step 504 of Figure 5 and column 7, line 1-9. However, these references describe updating a table if the protocol address IS in a certain list, while Claim 8 features updating the table if the address is NOT in a list.

As another example, Claim 10 features “wherein the ARP table is updated only in response to instructions that are not ARP messages”. The Office Action states that lines 6-34 of column 3 of *Sharma* anticipates this feature. However, this *Sharma* reference describes restricting ARP requests from unauthorized devices, not that the ARP table is updated only in

response to instructions that are **not** ARP messages. In addition, *Sharma* teaches away from this for this references describes ARP messages that are authorized.

Claim 11 features “determining whether the particular subsystem is a Hypertext Transfer Protocol (HTTP) server”. The Office Action states that lines 22-51 of column 4 of *Sharma* anticipate this feature. However, Applicants sees no reference whatsoever to HTTP in any way, and is unclear how this reference anticipates Claim 11.

Reconsideration is respectfully requested.

B. Claims 2-5, 26-29, 34-36—Sharma in view of Wilson

Claims 2-5, 26-29, 34-36 stand rejected under 35 U.S.C. § 103 as allegedly unpatentable over *Sharma* in view of *Wilson* U.S. Patent Pub. No. 20010054101. The rejection is respectfully traversed.

Claim 2 recites the method of Claim 1, wherein the particular subsystem is a Dynamic Host Configuration Protocol server, an Authentication, Authorization, Accounting (AAA) server or a Network Address Translator (NAT). The Office Action contends that claim 2 is shown in *Wilson* 0007 and FIG. 3 steps 314, 316. This is incorrect. *Wilson* **teaches away** from the claimed approach. In describing ARP module 307 of FIG. 3, *Wilson* states that **conventional ARP processing is performed according to RFC 826**. See *Wilson* [0056] to [0060]. *Wilson* further states that *Wilson*’s system **responds to all ARP requests**:

[0062] SolutionIP modifies the standard behaviors described above on an interface-by-interface basis by promiscuously responding to ARP requests. This is an extension to Proxy-ARP. In general, any ARP request is responded to by the SolutionIP Server with the SolutionIP Server’s MAC address regardless of the IP address being requested, with the following exceptions:

Thus, *Wilson* is not concerned at all with the problem of spurious ARP table updates because *Wilson* does not permit ARP table updates at all. Instead, *Wilson*’s system responds to all ARP requests with its own address.

Therefore, any skilled artisan reading Wilson would have no reason to combine the DHCP element 316 of Wilson with the approach of Sharma. Any such combination would provide, at most, a system in which **hosts as a whole** are checked before ARP table updates are made, and **conventional ARP table updates** are performed, or the Sharma system responds to all ARP requests. *Wilson* has no suggestion whatsoever to determine whether an ARP update is originated from the DHCP element or whether the DHCP element is authorized to make an ARP update.

Claims 3-5 respectively recite that determining whether the particular system is authorized comprises determining whether a Dynamic Host Configuration Protocol (DCHP) server is authorized, whether a Network Address Translator (NAT) is authorized, and whether an Authentication, Authorization, Accounting (AAA) server is authorized. As with claim 2, Wilson provides no relevant teaching. The Office Action relies on the same sections of Wilson without considering other parts of Wilson that **teach away** from the claimed approach. For example, for claim 3 (DHCP), Wilson [0117]-[0118] state that Wilson's DHCP module operates in entirely conventional manner. There is no description about testing whether the DHCP module is authorized to present ARP update requests.

For claim 4, the Office Action (page 9, paragraph 21) also relies on Wilson FIG. 3 block 314, 316 and paragraph 0007, but none of these parts of Wilson refer to network address translation at all. None of these parts of Wilson suggest testing whether a NAT process is authorized to make an ARP table update. The citations in the Office Action are simply irrelevant and do not support the asserted rejection.

For claim 5, the Office Action again relies on Wilson FIG. 3 block 314, 316 and paragraph 0007, but none of these parts of Wilson suggest testing whether a AAA server is authorized to make an ARP table update. Further, the Registration Web Server 314 is not an AAA server. According to Wilson [0131]-[0132], the Registration Web Server simply serves content pages relating to registration processes. There is no determination whether the server is authorized to make ARP table updates.

Claims 26-29, 34-36 recite features similar to claims 2-5 but are expressed in alternative claim formats and therefore claims 26-29, 34-36 are allowable for the same reasons stated above for claims 2-5.

Reconsideration is respectfully requested.

C. Claim 9—Sharma in view of Massarani et al.

Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sharma* in view of *Massarani*. The rejection is respectfully traversed.

Claim 9 depends from claim 1 and therefore includes the features of claim 1 that distinguish claim 1 from *Sharma*. Claim 9 is patentable over a combination of *Sharma* and *Massarani* because *Massarani* does not cure the deficiencies of *Sharma* noted above. Thus, because *Sharma* is missing the above-referenced features, any combination of *Sharma* with *Massarani* does not provide the complete subject matter that is recited in Claim 9. Accordingly, Claim 9 is allowable over a combination of *Sharma* and *Massarani*.

Reconsideration is respectfully requested.

D. Claims 14-22—Massarani in view of Chien et al.

Claims 14-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Massarani* in view of Chien US Pat. Pub. 20030115345. The rejection is respectfully traversed.

Present claim 14 features “receiving a request to update the ARP table from a Dynamic Host Configuration Protocol (DHCP) subsystem of a network device comprising a plurality of subsystems in a DHCP message that indicates a network layer address and corresponding data layer address; in response to receiving the message, determining whether the network layer address is bound with a data link layer address in the ARP table; and only if the network layer address is not bound with a data link layer address, then sending an instruction to update an ARP table”. The Office Action states steps 308 and 310 of Figure 3, step 416 of Figure 4 and lines 31-54 of column 5 of *Massarani* anticipate these features. This is incorrect.

In *Massarani*, the ARP table is updated in response to a machine recognizing the IP address as its own and replying so indicating. *Massarani* does not describe or suggest the use of a DHCP message requesting an update of the ARP table, as featured in claim 14.

The Office Action relies on Chien to allegedly show receiving a request to update an ARP table from a DHCP process in a DHCP message. This is incorrect. Chien actually states that ARP updates are **entirely separate** from DHCP messages, and that observing ARP traffic enables a system to obtain IP addresses **when DHCP is not implemented**:

[0063] When the RU sees the ARP request, it checks if the TARGET IA matches its IP (RU IP) address or falls into the HSD infrastructure network range. If it matches one of the conditions, the RU constructs an ARP response by filling in its hardware address in the TARGET HA, swapping the two sender addresses with the two target addresses, setting the OPERATION to 2, and sending the reply out. It also updates the ARP table using the information provided by the ARP request in addition to the learning from observing DHCP activity (described later below). As previously described, this could also be accomplished by applying a suitable mask to identify a desired higher range of infrastructure addresses as one ordinarily skilled in the art will appreciate.

[0064] Learning from the ARP allows the user to manually configure a home appliance which does not support DHCP mechanism. This is also needed in case the RU loses the

See especially paragraph 64.

The mere mention in Chien of DHCP and ARP in the same paragraph does not mean that Chien discloses that DHCP sends ARP table updates and such updates are allowed only if the DHCP subsystem is authorized, as claimed. The mere presence of keywords in a paragraph of a reference cannot amount to a disclosure of the claimed subject matter when a reading of the entire paragraph or section indicates otherwise.

Claims 15-22 depend from Claim 14, and include each of the above-quoted features by dependency. Thus, Claims 15-22 also lack at least one feature found in *Massarani*, and therefore *Massarani* does not anticipate Claims 15-22. In addition, each of Claims 15-22 recites at least one feature that independently renders it patentable. For example, Claim 17 features “receiving a

particular DHCP message that requests an extension of a lease; and in response to receiving the particular DHCP message, sending an instruction to update the ARP table". The Office Action contends that this feature is described in the abstract of *Massarani*. This is incorrect. The abstract describes a DHCP server revoking the IP lease if time has expired, but not the feature of requesting an extension and updating the ARP table.

Reconsideration is respectfully requested.

II. CONCLUSIONS & MISCELLANEOUS

For the reasons set forth above, all of the pending claims are now in condition for allowance. The Examiner is respectfully requested to contact the undersigned by telephone relating to any issue that would advance examination of the present application.

A petition for extension of time to the extent necessary to make this reply timely filed, is hereby made. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,
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